

- 16 -

# CLAIMS

1. A method of regenerating a remotely transmitted signal comprising a symbol stream modulated onto a carrier in accordance with a predetermined standard, the method including the steps of:
  - 5 a) receiving the remotely transmitted signal having known characteristics;
  - b) determining frame timing of the received signal;
  - c) identifying the locations of sequences within the signal from the frame timing;
  - 10 d) identifying the structure of the sequences;
  - e) estimating phase shift values at the locations of the sequences;
  - f) demodulating the symbol stream using the estimated phase shift values and the structure of the sequences; and
  - g) remodulating the symbol stream using the phase shift values.
- 15 2. A method according to claim 1, wherein step f) comprises the additional step of correcting the symbol stream prior to step g).
3. A method according to claim 2, wherein the step of correcting the symbol stream incorporates substitution of symbols in the symbol stream where the symbol stream is known *a priori*.
- 20 4. A method according to any one of the preceding claims, wherein step f) further comprises comparing demodulated symbols with known symbols to provide an estimate of the symbol error rate.
5. A method according to any one of the preceding claims, wherein step a) includes down converting the received signal to a nominal 0Hz  
25 intermediate frequency.

- 17 -

6. A method according to claim 5, wherein step a) further includes digitising the intermediate frequency signal to provide a digitised symbol stream in a complex signal domain.
- 5 7. A method according to any one of the preceding claims, wherein step e) includes estimating mean beat frequency of the signal, removing the estimated mean beat frequency from the signal and storing the mean beat frequency in a database.
- 10 8. A method according to claim 7, wherein step e) further includes estimating residual phase shift of the signal and storing the estimated residual phase shift of the signal in the database.
9. A method according to any one of the preceding claims, wherein the sequences include training sequences, synchronisation signals, frequency correction bursts, or dummy bursts.
- 15 10. A method according to claim 9, wherein the training sequences include eight training sequences associated with data bursts.
11. A method according to claim 10, wherein the training sequences include a ninth training sequence associated with dummy bursts.
12. A method according to claim 10 or 11, further including the step of using training sequences and correlation peaks for multi-path compensation.
- 20 13. A method according to claim 12, wherein channel estimation of data sequences are used for multi-path compensation.